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U.S. DEPARTMENT OF AGRICULTURE  
BUREAU OF ANIMAL INDUSTRIES  
BRUCELLOSIS ERADICATION  
PROGRAM

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# BRUCELLOSIS ERADICATION



Uniform Methods  
and Rules

EFFECTIVE SEPTEMBER 1979

U.S. Department of Agriculture  
Animal and Plant Health Inspection Service

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## **Foreword**

This publication is the Brucellosis Eradication Uniform Methods and Rules for establishing and maintaining:

1. Certified Brucellosis-Free Herds of Cattle
2. Modified Certified Brucellosis Areas
3. Certified Brucellosis-Free Areas
4. Validated Brucellosis-Free Herds of Swine
5. Validated Brucellosis-Free Areas

The provisions of these methods and rules were approved by the United States Department of Agriculture's Animal and Plant Health Inspection Service as the minimum standards for achieving and maintaining certified and validated herd and certified and validated area status after careful consideration of the recommendations by the United States Animal Health Association. Except where specified, the provisions of Chapter 1, Part I-Definitions, and Part II-Recommended Procedures apply similarly to bison.

The definition "Qualified Herd" is being replaced with the term "Tested Herd" in this revision. Terminology used in numbers 2 and 3 above will be terminated as soon as possible but no later than January 1, 1982. At that time, area status will be Statewide and described as follows: Class A (Brucellosis Free), Class B (Intermediate Risk of Brucellosis), and Class C (Higher Risk of Brucellosis). Suggested standards for these classes are currently available in Section 6 of the Report of the National Brucellosis Technical Commission, August 28, 1978.

The publication may be amended in the future by the replacement or addition of revised pages.

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# **Brucellosis Eradication**

## **Uniform Methods and Rules**

### **Chapter I — Bovine Brucellosis**

#### **Part I — Definitions**

**A. REACTOR<sup>1</sup>** — Official vaccines of dairy breeds 20 months of age and over and official vaccines of beef breeds 24 months of age and over (as evidenced by the presence of the first pair of permanent incisor teeth) or official vaccines under these ages that are parturient (springers) or postparturient are classified serologically as reactors when they disclose complete standard plate test (SPT) or standard tube test (STT) agglutination reactions in the blood titer dilution of 1:200 or higher; are positive to the brucellosis card test where it has been the only test conducted; disclose titers of 25 percent fixation (1 plus) in a dilution of 1:40 or higher on the complement-fixation (CF) test; disclose a complete agglutination reaction in the 1:25 dilution or higher on the rivanol test; or are found infected by other diagnostic procedures such as isolation of *Brucella abortus*.

All other cattle more than 6 months of age are classified serologically as reactors when they disclose a complete agglutination reaction in the blood titer dilution of 1:100 or higher; are positive to the card test where it has been the only test conducted; disclose titers of 50 percent fixation (2 plus) in a dilution of 1:20 or higher on the complement-fixation test; disclose a complete agglutination reaction in the 1:25 dilution or higher on the rivanol test; or are found infected by other diagnostic procedures such as isolation of *Brucella abortus*.

Where approved whole herd vaccination of herds at high risk (including Certified Brucellosis-Free Herds, infected herds, or herds not Certified Brucellosis-Free) with reduced doses of *B. abortus* Strain 19 has been carried out, adult vaccinated (AV) tattooed or branded animals are considered reactors if the CF test has at least 25 percent fixation (1 plus) in a dilution of 1:40 or higher. A first test is recommended at 2 months or as early thereafter as possible following the whole herd vaccination in order to facilitate elimination of field strain infection. At less than 5 months postvaccination, animals are considered reactors if a complete agglutination reaction occurs in the 1:50 dilution or higher on the rivanol test. On tests at more than 5 months postvaccination, animals are considered reactors if a complete agglutination reaction occurs in the 1:25 dilution or higher on the rivanol test.

The evaluation of titer responses for all cattle shall be the responsibility of a trained, experienced epidemiologist(s) who has been designated to perform and/ or supervise this function in each of the States taking into consideration the animal and herd history and other epidemiologic considerations. The selection of the epidemiologist shall be made jointly by the cooperating animal health officials, the Regional Epidemiologist, and the brucellosis staff of Cattle Diseases Staff, Veterinary Services (VS). Deviations from the above reactor criteria are acceptable when made by the designated epidemiologist.

<sup>1</sup>Also see Part II,I — "Classification of Cattle."

**B. SUSPECT<sup>1</sup>** — Official vaccines of dairy breeds 20 months of age or over and official vaccines of beef breeds 24 months of age and over (as evidenced by the presence of the first pair of permanent incisor teeth) or official vaccines under these ages that are parturient (springers) or postparturient are classified as suspects serologically when they disclose any SPT or STT agglutination reactions in the dilution of 1:100 or incomplete agglutination in the 1:200 dilution. Cattle serologically negative to the SPT or STT tests but which are positive to the brucellosis card test, if it is performed, are serologically classified as suspects. When the CF test is conducted, all test-eligible cattle having less than 25 percent fixation (1 plus) in a dilution of 1:40 and 50 percent (2 plus) or more in a dilution of 1:10 are classified as suspects serologically.

All other cattle more than 6 months of age are classified as suspects serologically when they disclose any SPT or STT agglutination reactions in the blood titer dilution of 1:50 or incomplete agglutination in the 1:100 dilution. Cattle serologically negative to the SPT or STT tests but which are positive to the brucellosis card test, if it is performed, are serologically classified as suspects. When the CF test is conducted, all cattle more than 6 months of age having less than 50 percent fixation (2 plus) in a dilution of 1:20 and 50 percent fixation (2 plus) or more in a dilution of 1:10 are classified as suspects serologically.

The evaluation of titer responses for all cattle shall be the responsibility of a trained, experienced epidemiologist(s) who has been designated to perform and/or supervise this function in each of the States taking into consideration the animal and herd history and other epidemiologic considerations. The selection of the epidemiologist shall be made jointly by the cooperating animal health officials, the Regional Epidemiologist, and the brucellosis staff of Cattle Diseases Staff, Veterinary Services (VS). Deviations from the above suspect criteria are acceptable when made by the designated epidemiologist.

**C. NEGATIVE<sup>1</sup>** — Official vaccines of dairy breeds 20 months of age or over and official vaccines of beef breeds 24 months of age and over (as evidenced by the presence of the first pair of permanent incisor teeth) or official vaccines under these ages that are parturient (springers) or postparturient are classified as negative serologically when the SPT or STT disclose reactions of not more than complete agglutination in the 1:50 dilution, if performed; are negative to the brucellosis card test, if performed; disclose 25 percent fixation or less (1 plus) at the 1:10 dilution of the CF test, if performed; or disclose less than complete agglutination at the 1:25 dilution on the rivanol plate agglutination test, if performed.

All other cattle more than 6 months of age are classified as negative serologically when the SPT or STT disclose reactions of not more than complete agglutination in the 1:25 dilution, if performed; are negative to the brucellosis card test, if performed; disclose 25 percent fixation or less (1 plus) at the 1:10 dilution on the CF test, if performed; or disclose less than complete agglutination at the 1:25 dilution on the rivanol plate agglutination test, if performed.

Blood samples collected at slaughter are serologically negative when no evidence of agglutination is disclosed by the rapid screening test (RST) or buffered acidified plate antigen test. Blood samples collected at livestock markets are serologically negative when no evidence of agglutination is disclosed on the buffered acidified plate antigen test. Blood samples collected at slaughter or at livestock markets showing some agglutination to the rapid screening test or the buffered acidified plate test, as appropriate, are classified negative if the confirmatory test (brucellosis card test or SPT) is negative.

## **D. TEST-ELIGIBLE CATTLE**

1. Herd Blood Test — Herd blood tests shall include all cattle over 6 months of age except steers, spayed heifers, official calfhood vaccines of the dairy breeds under 20 months of age, and official calfhood vaccines of beef breeds under 24 months of age (as evidenced by the presence of the first pair of permanent incisor teeth) which are not parturient (springers) or postparturient.

### 2. Market Cattle Identification (MCI) Blood Testing

a. Blood Sampling at Slaughtering Establishment — All cows and bulls over 2 years of age.

b. Blood Testing at Livestock Markets or at Farm or Ranch - All cattle over 18 months of age (as evidenced by the loss of the first pair of temporary incisor teeth) except steers, spayed heifers, official calfhood vaccines of the dairy breeds under 20 months of age, and official calfhood vaccines of beef breeds under 24 months of age (as evidenced by the presence of the first pair of permanent incisor teeth) which are not parturient (springers) or postparturient.

### 3. Test for Other Movements — Same as 2.b.

**E. HERD BLOOD TEST** — The herd blood test must include all test-eligible cattle (Part I, D. 1. above). Bulls, steers, and female cattle being held in feedlots which meet the requirements defined in Part I, I (Quarantined Feedlot) are exempt from herd blood test requirements because they are not defined as herds. The tested cattle shall be identified with an official eartag (Part I, M) or official registration tattoo on purebred cattle. Large-numbered, unique, plastic bangle tags may be used additionally if correlated on test records with the official eartag.

**F. HERD** — A herd is all cattle (genus *Bos*) under common ownership or supervision that are grouped on one or more parts of any single premises (lot, farm, or ranch). A herd is all cattle (genus *Bos*) on two or more premises geographically separated but on which the cattle have been interchanged or where there has been contact of cattle between the premises. Such contact shall be accepted as having occurred unless otherwise established by the owner. In addition, the noninterchange of cattle and/or lack of contact must be consistent with the findings of the epidemiologic investigation. (Quarantined Feedlots Part I, I, and Quarantined Pastures Part I, J, are not herds.)

For brucellosis eradication purposes, groups of cattle under multiple ownership on common premises, such as community pastures, grazing association units, etc., shall also be considered as a herd. Such herds shall include all other groups of cattle owned by those persons unless the epidemiologic investigation establishes that association has not occurred.

For determining herd infection rates, such negative multiple ownership may be counted as separate herds at risk and only designated as a single unit when classified as affected.

**G. INDIVIDUAL HERD PLAN** — A herd management and testing plan designed by the herd owner, his veterinarian, if so requested, and a veterinarian of the Cooperative Brucellosis Eradication Program which will control and eventually eradicate brucellosis from an affected herd. A similar plan for determining the true status of suspects and preventing exposure to brucellosis within the herd is also within the meaning of the term "Individual Herd Plan."

The plan will utilize those veterinary procedures most applicable and the proven herd management procedures necessary to assist these procedures in controlling the spread of brucellosis within the herd and thereby eradicating the disease from the herd. (See Part II, T.)

**H. FEEDLOT** — A confined drylot area for finish feeding of animals on concentrated feed with no facilities for pasturing or grazing. The feedlot shall not hold animals which have not met the required testing procedures at origin and destination.

The feedlot must be treated as a herd if infection is traced to it by surveillance procedures or by epidemiological measures. This would mean quarantining of the feedlot and the breeding animals on the premises until released by the slaughter of all quarantined animals in the feedlot or alternatively by testing procedures.

**I. QUARANTINED FEEDLOT** — A quarantined feedlot shall be a confined area under official State quarantine and shall be approved jointly by the State and Federal animal health officials. All animals in a quarantined feedlot shall be classified as exposed to brucellosis. The quarantined feedlot shall be maintained for finish feeding of animals in drylot with no provision for pasturing or grazing. There shall be no breeding or "two-way" cattle allowed in the quarantined feedlot. All animals except steers and spayed heifers must be permanently identified with a hot iron "S" brand either on the left jaw or high on the tailhead (over the fourth to the seventh coccygeal vertebrae) upon entering such feedlots. All animals leaving such quarantined feedlots must move only to another quarantined feedlot or for immediate slaughter in accordance with established procedures for handling quarantined (exposed) animals (see Part II, M), including issuance of "S" brand permits prior to movement. The animal health officials shall establish procedures for accounting of all animals entering or leaving such quarantined feedlots. Community notification shall be made of the presence of a quarantined feedlot (see Part II, F).

**J. QUARANTINED PASTURE** — A quarantined pasture shall be a designated, confined area for grazing under official State quarantine and shall be approved jointly by the State and Federal animal health officials. Quarantined pastures may not be approved in Certified Brucellosis-Free States. In other areas, animal health officials shall request approval from the Deputy Administrator, Veterinary Services, APHIS, and justify the need. Where approved, quarantined pastures may receive only intrastate cattle and may not involve interstate movements except to slaughter or quarantined feedlots. An intensified eradication effort which produces large numbers of exposed or adult vaccinated animals needing the grazing period to reach slaughter condition would be an acceptable justification. All animals in the quarantined pasture shall be classified as exposed to brucellosis. The quarantined pasture shall be for the purpose of utilizing available forage to grow or to improve flesh condition of cattle. There shall be no breeding or "two-way" cattle allowed in the quarantined pasture. Sex shall be the same (e.g., all cows or all bulls) except that neutered animals may share the quarantined pasture. All animals except steers and spayed heifers must be permanently identified with a hot iron "S" brand either on the left jaw or high on the tailhead (over the fourth to the seventh coccygeal vertebrae) upon entering the quarantined pasture. All animals leaving the quarantined pasture must move only for immediate slaughter or to a quarantined feedlot. The movement shall be in accordance with established procedures for handling quarantined (exposed) animals (see Part II, M) including issuance of "S" brand permits prior to movement. The animal health official shall establish

procedures for accounting of all animals entering or leaving the quarantined pasture. Approval of a quarantined pasture shall not exceed a period longer than 10 months. All exposed cattle must vacate the premises on or before the expiration of approval. Community notification shall be made of the presence of a quarantined pasture.

**K. "S" BRANDED CATTLE** — Cattle which have been identified by branding with a hot iron the letter "S" (at least 2x2 inches) placed on the left jaw or high on the tailhead (over the fourth to the seventh coccygeal vertebrae). "S" branding is required for exposed cattle and for untested test-eligible cattle, originating in modified certified and noncertified areas, to move in marketing channels from farms or markets to Quarantined Feedlots (Part I, I), to Quarantined Pastures (Part I, J), or to immediate slaughter. Testing of test-eligible cattle is recommended in lieu of "S" branding.

## **L. PERMIT**

1. Permit (VS Form 1-27 or Comparable State Form) - As used in these rules, except for the terms "permit for entry" and "S" brand permit, a permit shall mean an official document issued by a Veterinary Services representative, State representative, or accredited veterinarian which is required to accompany "B" branded cattle and bison (or exposed cattle and bison moved under official seal). It will list one of the following: the identification tag, tattoo, USDA backtag, registration number, or similar identification. It will also list the reactor tag number, owner's name and address, origin and destination locations, number of cattle covered, and the purpose of the movement. If a change in destination becomes necessary, a new permit must be prepared. No diversion from the permitted destination is allowed. Distribution of the copies is printed on the official document and must be followed.

2. Permit for Entry - As used in these rules, a permit for entry shall mean a premovement authorization for entry of cattle into a State from the animal health official in that State. The authorization will state the conditions under which movement may be made, and these conditions may be in addition to the requirements of these UM&R and Code of Federal Regulations.

3. "S" Brand Permit - As used in these rules, an "S" brand permit shall mean any document which is required to accompany animals in marketing channels having a restricted destination. It must show the origin, the destination, the number of restricted cattle, the purpose of the movement, the USDA backtag numbers (when applied serially, only the beginning and the ending number need be recorded), and a statement certifying to the "S" brand identification. It shall be prepared at the point of origin by an accredited veterinarian, a representative of the animal health officials, or a designated official at a quarantined feedlot. A copy of this "S" brand permit shall be immediately sent to the State animal health official with the original accompanying the animals. The original shall be delivered at the destination and retained at that location for a minimum of 6 months.

**M. OFFICIAL EARTAG** — A metal identification eartag conforming to the nine-character alpha-numeric National Uniform Eartagging System and of appropriate color (e.g., orange for vaccination). It provides unique identification for each individual animal.

**N. MARKET TEST ANIMALS** — Market test animals are test-eligible animals (Part I, D, 2) moving in trade through auction markets, stockyards, or to slaughtering establishments; also they are those animals assembled at farms or ranches that are being readied for immediate movement to markets, stockyards, or slaughtering establishments or other sales. Such animals shall be identified by eartag and/or backtag to the herd of origin prior to or at the first point of concentration in marketing channels.

**O. APPROVED BRUCELLA VACCINE** — A product that is approved by and produced under license of the U.S. Department of Agriculture for injection into cattle to enhance their resistance to brucellosis.

## **P. OFFICIAL VACCINATE**

1. Official Calfhood Vaccine - A female bovine animal of a dairy breed vaccinated against brucellosis with an approved brucella vaccine while from 2 through 6 months (60 to 179 days) of age. A female bovine animal of a beef breed vaccinated against brucellosis with an approved brucella vaccine while from 2 through 10 months (60 to 299 days) of age. All vaccination must be conducted under the supervision of a Federal or State veterinary medical official.

Vaccinated animals must be permanently identified as vaccines and reported at the time of vaccination to the appropriate State or Federal agency cooperating in the eradication of brucellosis.

When vaccination is performed, it should be done as soon as possible after 2 months of age to reduce the problem of residual titers.

2. Over Calfhood Age (official adult vaccinate) - A female bovine animal which has been vaccinated at an age over the ages given in 1., or at a lesser age in those States limiting still further the upper age, with an approved reduced dose of brucella vaccine as part of a "whole herd" vaccination plan. (See Part II, R.) This plan shall have been authorized by State and Federal officials directly responsible for program activities in the State in which the herd is located. All vaccination must be conducted under the supervision of a Federal or State veterinary medical official. Vaccinated animals must be permanently identified as adult vaccines and reported at the time of vaccination to the appropriate State or Federal agency cooperating in the eradication of brucellosis.

**Q. WHOLE HERD VACCINATION** — With "Whole Herd Vaccination," animals older than the age of official calfhood vaccination can be vaccinated under specific conditions with a reduced dose of vaccine. All eligible calves shall also be vaccinated and identified. (See Part II, R - Whole Herd Vaccination Plan.)

## **R. IDENTIFICATION OF VACCINATES**

1. Calfhood Vaccinates - Calfhood vaccinated animals shall be permanently identified as vaccines by tattoo and by official vaccination eartag. (If already identified with an eartag prior to vaccination, an additional tag is not required.) Brands may be used in addition to tattoo and eartag. Vaccination tattoos must be applied to the right ear. The tattoo will include the U.S. Registered Shield and V,

which will be preceded by a number indicating the quarter of the year and will be followed by a number corresponding to the last digit of the year in which the vaccination was done. Official vaccination eartags shall be applied to the right ear. The eartag will include the State prefix and a V, followed by two letters and four numbers which will individually identify such vaccinated animal. Individual animal registration tattoos may be substituted for official eartags. Brands, if used, must be applied to the right jaw. The V will be applied in one of four different positions — the open end facing up, forward, down, or toward the back. The brand position indicates in which year the vaccination was conducted. The fifth year will repeat the first year, and so on indefinitely. In 1980, the V shall be placed with the open end facing down, and in succeeding years it should proceed clockwise.

2. Over Calfhood Age - Animals which have been vaccinated over calfhood age in authorized "whole herd" vaccination herds shall be permanently identified as vaccines by the following procedures:

- a. Brucellosis-affected herds and herds not Certified Brucellosis-Free but at high risk - By an "AV" hot brand on the right jaw in addition to the official metal eartags (or registration tattoo) applied at the time of conducting the required preliminary blood test. Large-numbered, unique, plastic bangle tags are recommended to be used additionally and to be correlated on test records with the official eartag.
- b. Certified Brucellosis-Free Herds - By an official AV (adult vaccination) tattoo in the right ear preceded by the quarter of the year and followed by the last digit of the year as well as the official metal eartags (or registration tattoo).

## S. TRACEBACK OF REACTORS

1. Successful Traceback of Reactors - A successful traceback occurs when the premises or herd of origin of a market test reactor, including those animals identified as reactors on laboratory confirmation of market test, is located and the herd (as defined in Part I, F) is tested as is deemed necessary. Tracebacks to dealers, commission firms, and such, are not considered successful tracebacks of reactors if the investigation ceases at that point and all possible herds of origin are not tested. "Soldout" herds to be considered as successful tracebacks shall be confirmed by documentation of total slaughter and shall have no cattle remaining (see Part I, F "Herd"). Tracebacks to feedlots (Part I, H) are successful and are to be treated as a herd. Tracebacks to Quarantined Feedlots (Part I,I) and to Quarantined Pastures (Part I,J) are successful and are reported as Traced to Known Reactor Herds. A preentry test of test-eligible cattle is strongly recommended for cattle entering these Quarantined Feedlots and Quarantined Pastures.

2. Epidemiologic Investigation of Reactors - Every traceback requires an epidemiologic investigation and followup as outlined in (a) and (b) below (including traces to "soldout" herds) to effectively locate and control the disease. This investigation must include the following:

- a. Reactors in marketing channels with positive CF, RIV, or appropriate supplemental test titers:
  - (1) Contact and/or adjacent herds shall be identified, recorded, and investigated.

(2) Blood test the herd of origin (Part I, F) unless the epidemiological investigation indicates that the titers are not caused by field strains of *B. abortus*. Where a blood test is not conducted, the representative of the cooperating animal health agencies will prepare a statement indicating this was discussed with the owner or his representative and listing the reasons the herd was not tested. The statement shall be signed by both parties and both parties shall retain a copy.

(3) In Certified Brucellosis-Free Areas, all sales following the estimated date of onset of infection shall be traced and the herds of destinations identified, recorded, and investigated for evidence of infection by testing. If not tested, an agreement as in (2) shall be made. In Modified Certified Brucellosis Areas, this will be carried out to the extent resources are available.

(4) If the herd is negative, the herd will be retested 30-90 days later if deemed necessary by the epidemiologist.

b. Reactors in marketing channels which are not positive to the CF, RIV, or supplemental tests: The owner shall be advised of these results by writing, by telephone, or by a personal visit. A joint decision shall be reached to test or not to test the herd. Any decision not to test shall be documented. The herd shall be tested if reasonable doubt exists as to the reason for the serologic response, or if evidence of brucella infection is present, or if the status of contact or other neighborhood herds is questionable.

**T. TESTED HERD** — (This classification of herds replaces the former L, "Qualified Herd," definition and will be discontinued on January 1, 1982, with the implementation of serologic test Option Number 2. The definition will apply to herds located in noncertified areas only. (See Parts V and VI.)) A Tested Herd is a herd of cattle located in a noncertified area for which the State has records showing that the herd has been officially tested for brucellosis in accordance with the procedures for herd tests for initial modified area certification specified in Part V of these Brucellosis Eradication Uniform Methods and Rules within 12 months prior to movement and that the herd is not known to be affected with brucellosis. (For movement requirements, see Parts V and VI, 8, c, (3))

**U. CERTIFIED BRUCELLOSIS-FREE HERD** — See Part IV.

**V. EXPOSED ANIMALS** — Animals that are part of a known infected herd or that have been in contact with brucellosis reactors in marketing channels for periods of 24 hours or periods of less than 24 hours if the reactor has recently aborted, calved, or has a vaginal or uterine discharge are considered to be exposed regardless of the blood test results and must be placed under quarantine and restricted pending slaughter or testing after return to herd of origin. (The following definition will become effective as soon as possible but no later than January 1, 1982. EXPOSED ANIMALS - Animals that are part of a known affected herd or have been in contact with brucellosis reactors in marketing channels are considered to be exposed regardless of the blood test results. (See Part II, M, for handling procedures.)

**W. CATTLE** — The term cattle (genus *Bos*) includes all dairy and beef animals.

**X. DEALER**

1. Any person engaged in the business of buying or selling livestock in commerce either on his own account or as the employee or agent of the vendor and/or purchaser, or
2. Any person engaged in the business of buying or selling livestock in commerce on a commission basis.
3. The term shall not include a person who buys or sells livestock as part of his own bona fide breeding, feeding, or dairy and/or beef operations, nor a person who receives livestock exclusively for immediate slaughter on his own premises.

**Y. AUCTIONEER** — A person who sells or makes a business of selling livestock at auction.

**Z. AUCTION** — A public sale of livestock to the highest bidder.

**AA. COMMISSION FIRM** — A person, partnership, or corporation who buys and sells livestock as a third party and reports to the seller and /or to the buyer details of the transactions. This includes any such person or groups whether or not a fee is charged for the service.

**BB. COMMISSION SALES** — Those sales which are conducted by a third party and who reports to the seller and/or to the buyer details of the transactions.

## **Part II — Recommended Procedures**

**A. LABORATORIES** — Blood samples are to be tested only by cooperating State-Federal laboratories or by such persons as may be authorized to conduct the standard agglutination tests or the card test. All samples initially tested at other than cooperating State-Federal laboratories shall be promptly submitted and confirmed at the cooperating State-Federal laboratory. Each State or region shall have the laboratory capability of conducting the complement-fixation and rivanol tests, and of bacteriological culturing services for viability counts of vaccine and/or for the isolation of *B. abortus* from milk and tissues. A cooperative system shall exist with States, universities, and industry for regular review of the training and the performance of laboratory personnel and for assisting laboratories in the development of systems of continuing quality control for all laboratory tests and culturing procedures. State and regional laboratories shall be evaluated by a review committee, which includes qualified epidemiologists, at least once in each 3-year period.

**B. REPORTING** — Activities conducted privately or as part of the official brucellosis eradication program, such as results of agglutination tests or vaccination, shall be reported immediately to cooperating agencies and to the herd owner.

**C. SUPERVISION** — The official Brucellosis Eradication Program shall be supervised by full-time animal health veterinarians.

**D. QUARANTINES** — All cattle, except steers and spayed heifers, including officially vaccinated heifers and calves in affected herds, shall be confined to the premises until the herd is freed of brucellosis or sold for slaughter under permit or "S" brand permit. Two consecutive negative herd blood tests are required for release of quarantine with the first negative herd blood test occurring not less than 30 days after the removal and slaughter of all previous reactors. The releasing test (the required second negative herd blood test) shall occur not less than 120 days following the removal of the last reactor. Exceptions on the interval between tests required for the release of quarantine are allowable only when *Brucella abortus* Strain 19 organisms have been isolated from the reactor animal or all epidemiologic evidence is consistent with a *Brucella abortus* Strain 19 infection and not with field strain infection.

Certified Brucellosis-Free Herds quarantined for a whole herd vaccination program, may be released in accordance with the provisions of Part II, R, 2, b.

In Certified Brucellosis-Free States, an additional blood test of all test-eligible cattle in the herd is required not less than 6 months after release of an affected herd from quarantine or not less than 10 months after removal of the last reactor. The foregoing procedure is strongly recommended in all other States.

**E. RETESTS OF AFFECTED HERDS** — Retests of affected herds shall be conducted in accordance with an individual herd plan (Part II, T). Under routine conditions, retests are recom-

mended at approximately 30-day intervals until the herd has passed at least one negative herd test following the removal and sale for slaughter of the last reactor. A second consecutive negative herd blood test occurring not less than 120 days following the removal of the last reactor is necessary to qualify herds for release of quarantine as indicated in Part II, D. Continuation of testing is strongly recommended at 30-day intervals between the first and second negative herd tests which qualify the herd for quarantine release.

**F. COMMUNITY NOTIFICATION OF BRUCELLOSIS-AFFECTED HERDS** — The status of herds placed under quarantine for brucellosis and the approval of Quarantined Feedlots and Quarantined Pastures are to be made known to herd owners in the immediate community. Such herd owners shall be notified by means of an educational letter delivered through personal contact or by mail within 30 days of the issuance of the quarantine. The purpose of this notification is to emphasize to owners the importance of taking appropriate actions to protect their cattle against the disease threat posed to them by the presence of an affected herd in their community. When the herd quarantine is released, or the Quarantined Feedlot approval is terminated, the herd owners shall also be notified within 30 days by an educational letter delivered through personal contact or by mail.

**G. ADJACENT HERD AND EPIDEMIOLOGICALLY TRACED HERD TESTING** — Adjacent herds, or herds sharing common pasture or having other contact with the affected herd, and herds containing previous purchases from or exchanges with the affected herd shall be tested within 30 days of disclosure of the affected herd or be placed under quarantine until blood tested. (See Part III, C)

When the quarantine is released on the brucellosis affected herd, the owners of the potentially exposed herds, as described above, shall be notified of the desirability of a second negative herd blood test. If the owner decides not to have a second test, the representative of the animal health agencies will prepare a statement indicating that the value of a second test was discussed with the owner and listing the reasons the herd was not further tested. A copy of this statement will be given the herd owner.

**H. CLEANING AND DISINFECTION** — Premises shall be cleaned and disinfected under regulatory supervision within 15 days following the removal of reactors or the entire herd for slaughter or the requirements of 9 CFR 51 have been met to qualify for Federal indemnity.

## **I. CLASSIFICATION OF CATTLE**

1. Card Test - Card test results are classified as either negative or positive. The card test is to be used as an official test to classify cattle as reactors only:

- a. When conditions and time are such that no other test is available, or
- b. On request of the owner and/or his agent because of time or situation constraints, or
- c. In livestock markets when the State animal health official specifically designates the card test as the official test in livestock markets. No other test shall be used as an official test in those States where the card test has been given official test status in livestock markets.

Card tests may be used to classify animals negative on surveillance samples collected at slaughter, on routine samples collected on farms, and on tests of suspicious and affected herds. Results of the card test may be used in conjunction with other test results conducted in the State-Federal laboratory to aid in classification of cattle as reactors.

## 2. Standard tube test (STT) or standard plate test (SPT)

The blood titers of cattle tested by the STT or SPT methods are classified by use of the following:

### Official Vaccinates

1:50	1:100	1:200	
—	—	—	NEGATIVE
I	—	—	NEGATIVE
+	—	—	NEGATIVE
+	I	—	SUSPECT
+	+	—	SUSPECT
+	+	I	SUSPECT
+	+	+	REACTOR

### All Others

1:50	1:100	1:200	
—	—	—	NEGATIVE
I	—	—	SUSPECT
+	—	—	SUSPECT
+	I	—	SUSPECT
+	+	—	REACTOR
+	+	I	REACTOR
+	+	+	REACTOR

## 3. Complement-fixation test (CF)

The complement-fixation test when conducted by methods approved by National Veterinary Services Laboratories (NVSL) is an official test.

Interpretation for all nonvaccinated test-eligible cattle:

- Fifty percent fixation (2 plus) in a dilution of 1:20 or higher—reactor.
- Fifty percent fixation (2 plus) in a dilution of 1:10 but less than 50 percent fixation (2 plus) in a dilution of 1:20 — suspect.
- Less than 50 percent fixation (2 plus) in a dilution of 1:10 — negative.

Interpretation for all test-eligible vaccinated cattle including adult vaccinated animals beginning 2 months postvaccination:

- Twenty-five percent fixation (1 plus) in a dilution of 1:40 or higher — reactor.
- Fifty percent fixation (2 plus) in a dilution of 1:10 but less than 25 percent fixation (1 plus) in a dilution of 1:40 — suspect.
- Less than 50 percent fixation (2 plus) in a dilution of 1:10 — negative.

## 4. Rivanol test

The rivanol test is an official test when conducted in State-Federal laboratories. Complete agglutination at dilutions of 1:25 or more is a reactor. Less than complete agglutination at 1:25 is nega-

tive. There is no suspect classification with rivanol. Within 5 months postvaccination of adult cattle, a less than complete agglutination at the 1:50 dilution is negative.

## 5. Semen Plasma Test

The semen plasma test is approved as an official test in bulls used for artificial insemination when used in conjunction with another official serological test. The classification of such animals shall be based on the maximum agglutination titer of either the serological test or the semen test.

## 6. Buffered Acidified Plate Antigen Presumptive Test

Buffered acidified plate antigen presumptive tests may be used to classify animals negative on surveillance samples collected at slaughter and at livestock markets. Such tests may also be used as presumptive tests for routine samples collected on farms where there is no evidence of brucellosis. On tests of suspicious and affected herds, buffered acidified plate antigen tests may be used in addition to other official tests.

## 7. Rapid Screening Test (RST)

The RST may be used as a presumptive test for classifying animals negative in State-Federal laboratories.

## 8. Supplemental Tests

Supplemental tests are other tests developed to aid in determining the presence or absence of blood components associated with field strains of *B. abortus*, *B. abortus* Strain 19, nonspecific agglutinins, etc. Of these, only the card test is an official test when used as the sole test on a blood serum sample. Other procedures include ME (Mercaptoethanol), Coombs, HI at 56° C and 65° C (Heat Inactivation), APA (Acid Plate Antigen) at various pH's, FA (Fluorescent Antibody), ELA (Enzyme Labeled Antibody). Research being conducted may add other supplemental tests from time to time. Interpretation and the use of supplemental tests must be by the designated epidemiologist.

## 9. Reclassification of Reactors

Animals initially classified Reactors under Part I, A, may be eligible for reclassification provided a complete epidemiological investigation of the herd is conducted and there is no evidence of brucella infection or exposure thereto; and, provided final classification is determined by a qualified brucellosis epidemiologist. The herd must remain under quarantine pending final classification.

**J. IDENTIFICATION OF REACTOR CATTLE** — All reactor cattle shall be permanently identified by hot iron branding with the letter B (at least 2x2 inches) placed on the left jaw. An approved reactor tag must be placed in the left ear. Identification of reactors must be accomplished within 15 days of the test date. The time may be extended 15 days for reasons mutually acceptable to the cooperating State and Federal officials in charge.

## **K. IDENTIFICATION BY "S" BRANDING OF EXPOSED CATTLE, OF UNTESTED TEST-ELIGIBLE CATTLE FROM MODIFIED CERTIFIED AREAS OR NONCERTIFIED AREAS, AND OF SUSPECTS**

1. Exposed cattle - All exposed cattle moving from a premises of origin or from a livestock market to a quarantined feedlot or quarantined pasture, or to slaughter shall be identified by branding with a hot iron the letter "S" (at least 2x2 inches) placed on the left jaw, or high on the tailhead (over the fourth to the seventh coccygeal vertebrae). Identification shall be prior to movement, or exposed cattle on the premises of origin may be identified and permitted to a livestock market where they shall be identified by "S" brand upon arrival. Exposed cattle returned from the livestock market to the herd of origin under quarantine pending further testing are exempt from this "S" branding requirement. Exposed cattle may move with an "S" brand permit from the farm of origin or from specifically approved markets direct to Federal or State inspected slaughtering establishments in a sealed truck without permanent identification by "S" brand as stated in Part II, M. Exposed cattle in herd depopulations shall be "B" branded to qualify for Federal indemnity instead of by "S" branding.
2. Untested test-eligible cattle (Part I, D., 2, b) - Such cattle in marketing channels having originated from modified certified areas or noncertified areas, which are being moved or sold shall be identified and moved in the same manner as prescribed for exposed cattle (see par. 1. above) unless they were part of a Certified Brucellosis-Free Herd. Testing of test-eligible cattle is recommended in lieu of "S" branding.
3. Suspects - Cattle classified as Suspects which are being moved or sold shall be identified and moved in the same manner as prescribed for exposed cattle (see par. 1. above).

Movements without change of ownership from a farm of origin directly to a livestock market are exempt from the "S" branding requirement, but the cattle must be tested upon arrival or be "S" branded.

## **L. IMMEDIATE SLAUGHTER OF REACTORS, "B" BRANDED EXPOSED CATTLE IN HERD DEPOPULATION, AND EXPOSED CATTLE CONSIGNMENT TO IMMEDIATE SLAUGHTER**

1. Reactor cattle and "B" branded exposed cattle must be sold for immediate slaughter and removed from the premises under State or Federal permit within 15 days of the date of identification. The time may be extended 15 days for reasons mutually acceptable to the cooperating State and Federal officials in charge. Reactors and "B" branded exposed cattle in herd depopulations shall remain on the premises where disclosed until a State or Federal permit for movement to slaughter has been obtained. Movement for immediate slaughter must be to a slaughtering establishment where Federal or State inspection is maintained or to a State or Federal approved market for sale to such slaughtering establishment. There shall be no diversion from the permitted destination.
2. Exposed cattle consigned for immediate slaughter shall remain on the premises of origin until an "S" brand permit for movement to slaughter has been prepared. Movement for immediate slaughter must be to slaughtering establishment where State or Federal inspection is maintained or to a State or Federal approved market for sale to such a slaughtering establishment. There shall be no diversion from the permitted destination.

**M. MOVEMENT OF REACTORS, EXPOSED CATTLE, SUSPECTS, AND UNTESTED TEST-ELIGIBLE "S" BRANDED CATTLE** — Reactors, "B" branded exposed cattle, and "S" branded cattle must be moved under permit or "S" brand permit. There shall be no diversion from the permitted destination. When moved, the cattle must be maintained separate and apart from all other classes of livestock, in specially designed pens reserved for this purpose at livestock markets or trucking facilities. These pens must be thoroughly cleaned and disinfected before reuse. Calves under 6 months of age which are nursed by brucellosis-exposed cows may move from the quarantined premises within 10 days after a negative brucellosis test on the dam. Calves under 6 months of age which are nursed by brucellosis reactor or exposed cows may move from the quarantined premises provided they have been weaned for not less than 30 days immediately preceding the movement.

1. Reactors and "B" branded exposed cattle - Reactors and "B" branded exposed cattle in herd depopulations shall remain on the premises where disclosed until a State or Federal permit for movement to immediate slaughter has been obtained. Movement for immediate slaughter must be to a slaughtering establishment where Federal or State inspection is maintained or to a State or Federal approved market for sale to such slaughtering establishment.

2. Exposed cattle

a. All exposed cattle moving from a premises of origin or from a livestock market to a quarantined feedlot, or to a quarantined pasture, or to immediate slaughter shall remain on the premises where disclosed until an "S" brand permit for movement to immediate slaughter has been prepared. Movement for immediate slaughter must be to a slaughtering establishment where Federal or State inspection is maintained or to a State or Federal approved market for sale to such slaughtering establishment.

b. Exposed cattle may move from the farm of origin or from specifically approved markets directly to Federal or State inspected slaughtering establishments in a sealed truck without permanent identification by "S" brand. The entire truckload of cattle or other susceptible species must be consigned to slaughter at a single slaughtering establishment. Mixed loads of slaughter, feeder, or breeding cattle are not to be included in such shipments. The entire load must be consigned direct to slaughter with no diversion to holding feedlots, pastures, or dealer pens. Truck seals are to be placed by State or Federal animal health personnel during regular work hours, or by accredited veterinarians. A permit as defined in Part I, L, 1., with the appropriate seal number recorded on the permit, shall accompany each shipment. Cattle to be transported in sealed vehicles must remain on the premises until the appropriate animal health personnel or accredited veterinarian writes the permit and seals the vehicle. No post-authorized permits may be approved. Truck seals are to be broken by State or Federal animal health personnel during regular working hours, or by accredited veterinarians, or by a slaughtering establishment officer designated by Meat Inspection or by the State.

3. Untested test-eligible cattle - Untested test-eligible cattle of unknown status from modified certified areas or noncertified areas, which are being moved or sold, shall be identified and moved in the same manner as described for exposed cattle (see par. 2. above). Testing of test-eligible cattle is recommended in lieu of "S" branding.

4. Suspects which are being moved or sold shall be identified and moved in the same manner as described for exposed cattle (see par. 2. above).

If the owner and the market operator agree in writing that they will be fully responsible to prevent contact or other exposure to non "S" branded cattle, such "S" branded cattle may be moved to one additional market and then to a quarantined feedlot, or to a quarantined pasture, or to immediate slaughter. All such movements must be under "S" brand permit, provided the movement is permissible by State laws, rules, and regulations.

**N. ENTERING PREMISES** — Persons engaged in the brucellosis eradication program shall be authorized under State authority to enter premises to carry out eradication procedures and shall practice such sanitary procedures so as to minimize the risk of physically transmitting the disease to other premises.

**O. SERVICES TO OWNER** — Program services may be rendered without expense to the livestock owner; however, owners are to provide for handling of their cattle. Contracts with accredited veterinarians, nonprofessionals, other State and Federal agencies, or with the management of privately owned firms are to be used as needed to assist State and Federal animal health personnel accomplish necessary sample collections, animal identifications, and other activities. Within 3 days following notification of the results of an initial herd blood test, the owner may request an additional blood test on reactors at his expense provided such request is based on sound epidemiological evidence and provided all animals remain under herd quarantine.

**P. HERD DEPOPULATION** — Herds with a high brucellosis infection rate or chronic infection of long duration shall be reviewed for possible depopulation with indemnity. All affected herds shall be reviewed for possible depopulation with indemnity in States which previously had been free of brucellosis, to reduce risk of further spread to other herds.

**Q. DIAGNOSTIC REAGENTS FOR BRUCELLOSIS** — Brucella antigens used for the diagnosis or detection of brucellosis in domestic livestock will be distributed only to animal health personnel and approved accredited veterinarians.

**R. WHOLE HERD VACCINATION PLAN** — Under this plan, the entire herd is to be blood tested followed by vaccination of the nonreacting cattle. Vaccination will be conducted within 10 days after completion of test and permanent identification, with removal of reactors from premises. Whole herd vaccination plan will not be used in Certified Brucellosis-Free States without the approval of the State Veterinarian and the Deputy Administrator, Veterinary Services, Animal and Plant Health Inspection Service.

1. Affected herds and herds which are not Certified Brucellosis-Free - In problem herds where there is evidence of either a rapid spread of brucellosis in the herd or a chronic infection of longstanding and where the normal test and slaughter procedures have not been successful in eliminating brucellosis from the herd, the individual herd plan may include the use of whole herd vaccination in addition to other recognized procedures for control and elimination of the disease. Persons owning

herds at high risk of becoming infected with brucellosis, herds with low level infection, or herds which are not Certified Brucellosis-Free, may also request "whole herd" vaccination. All eligible calves shall also be calfhood vaccinated and identified. Herds which are not Certified Brucellosis Free but are approved for whole herd vaccination shall follow the same procedures as for the highly infected herd. Such procedures may be initiated only upon written permission of the State and Federal officials directly responsible for program activities in the State in which the herd is located. All animals so vaccinated shall be identified by an "AV" hot iron brand on the right jaw and shall be permanently restricted to authorized premises or moved under permit to quarantined feedlots or to immediate slaughter. A first retest is recommended at 2 months or as early as possible following the whole herd vaccination in order to facilitate elimination of field strain infection. (See Part I, A, last sentence.)

Herds shall resume test and slaughter procedures no later than 6 months following the initial whole herd vaccination. Testing will be at intervals as agreed to in the Individual Herd Plan. Adult vaccination in replacement animals which have passed a negative test within 10 days prior to entry may be used in a herd for a period not to exceed 36 months after initial whole herd vaccination.

(AV branded cattle may be moved provided the herd has been released from quarantine; provided the branded cattle themselves meet any additional requirements for movement of test-eligible cattle within, to, or from Modified Certified Brucellosis Areas (becomes Class B or Class C States January 1, 1982); and provided the cattle are individually identified as "AV" branded cattle on the official permit for movement. Formal adoption of this provision is contingent upon this position being supported by the Scientific Advisory Committee of the Brucellosis Committee, USAHA, following their review of data currently being assembled on adult-vaccinated herds and work being conducted at National Veterinary Services Laboratories, Ames, Iowa.)\*

2. Certified Brucellosis-Free Herds - Under this plan, owners of Certified Brucellosis-Free Herds in an area of high risk of becoming infected with brucellosis may request "whole herd vaccination." The purpose will be to establish an immediate high level of resistance to the present or expected exposure from field strain *Brucella abortus*. Such procedures may be initiated only upon written permission of the State and Federal officials directly responsible for program activities in the State in which the herd is located.

In herds of known status, i.e., Certified Brucellosis-Free Herds, the individual herd plan may include the following whole herd vaccination procedures in addition to other recognized procedures for prevention or control of the disease:

a. A blood sample shall be obtained from all test-eligible cattle for serologic testing. If all tests are negative, continue to treat as a Certified Brucellosis-Free Herd at high risk, but if any cattle are reactors, treat the herd as an affected herd and follow the same rules as for known affected herds and herds which are not Certified Brucellosis Free. (Par. 1, Affected herds and herds which are not Certified Brucellosis-Free.)

b. In Certified Brucellosis-Free Herds with negative serologic tests, but at high risk, all eligible calves shall be calfhood vaccinated and identified. Within 10 days after serologic testing, all other female cattle shall be vaccinated with a reduced dose of Strain 19 vaccine and identified with an official "AV" (adult vaccination) tattoo in the ear as well as the permanent individual official metal

eartag. Following vaccination, the herd will be placed under quarantine. Included in the individual herd plan shall be provisions for the herd to be tested approximately 90 days following vaccination, and at not less than 30-day intervals thereafter, until two consecutive negative (Part I, C) tests are obtained to release the quarantine. The adult-vaccinated cattle can move as test-eligible official vaccines (Part I, P). Certified Brucellosis-Free Herd status is suspended while the herd remains under quarantine and is reinstated upon release from quarantine provided field strain *Brucella abortus* has not been isolated from the herd.

**S. EPIDEMIOLOGIC SERVICES** — The brucellosis eradication program shall furnish quality epidemiologic services to aid veterinarians and herd owners in brucellosis prevention and control leading toward local eradication. To accomplish this goal, the following epidemiologic-related services shall be instituted.

1. State-employed veterinarians having brucellosis program responsibilities shall attend an APHIS brucellosis epidemiology short course or its equivalent within the first year of their assignment. Those currently employed and assigned to this program should also receive this training at the earliest possible date.
2. State livestock inspectors and APHIS animal health technicians shall be required to participate in a structured program of continuing education on program elements.
3. Each State brucellosis program supervisor shall notify the State public health agency at the time, or within 15 days, of the imposition of each herd quarantined for brucellosis. The public health agency will be requested to mail an educational letter to the owners of quarantined herds.

**T. INDIVIDUAL HERD PLAN FOR AFFECTED HERDS AND SUSPECTS** — A plan for the elimination of brucellosis from each affected herd shall be developed by the herd owner (and his veterinarian if so requested by the owner) and a veterinarian of the Cooperating Brucellosis Eradication Program. The plan shall be formalized as a Memorandum of Agreement between the owner and the animal health official. With the provision that the plan may be reevaluated and changed, as agreed to by all parties concerned, it shall be the responsibility of all parties to the agreement to adhere to the plan throughout the period of eradication of the disease from this herd.

The plan should be developed to reduce and then eliminate brucellosis within the herd, to prevent spread to other herds, and to prevent reintroduction of brucellosis after this herd has become free of the disease. Developers of the plan should consider: the classification of the State in which the herd is located, the risk of spread to other herds of cattle (potential “off-site costs” to other herd owners and society), the amount of infection and possible exposure within the affected herd, the type of cattle operation, and the conditions affecting the economics and management of the herd as they relate to control and local eradication procedures. The developers should prepare a written plan that will be epidemiologically sound in terms of this particular individual herd. It would include such items as testing schedules, herd health management practices, procedures to govern preparturient and parturient cows, the exit or entry of cattle into the herd, identification of cattle, sanitation practices, the use of Strain 19 *B. abortus* vaccine, and other appropriate preventive practices. Vaccination of

calves should be discussed with the owner and recommended for calves in high risk areas or that may be sold into high risk areas. In special situations, whole herd vaccination may be recommended with concurrence of appropriate State and Federal officials.

When suspects are found in herds which are not Certified Brucellosis-Free, or in Certified Brucellosis-Free Herds, a similar individual herd plan should be initiated. This plan should include testing schedules and management plans that will minimize spread of brucellosis within the herd or to other herds.

**U. DEALER REGISTRATION AND RECORDKEEPING** — Any dealer who purchases, deals in, or sells cattle; or who acts as a commission representative or broker; or who operates and conducts an auction where cattle are sold must be registered or licensed with the appropriate State agency and maintain required records.

1. Dealer Registration - The State agency shall have authority, after due notice and opportunity for hearing to the individual or firm involved, to deny an application for registration, suspend or cancel the registration when the agency is satisfied of one or more of the following:

a. That they have violated State and/or Federal statutes and/or official regulations governing the interstate or intrastate movement, shipment, or transportation of cattle.

b. That they have made false or misleading statements in their application for registration or false or misleading statements as to the health or physical conditions of cattle regarding official test results or status of the herd of origin.

c. That they have knowingly sold for dairy or breeding purposes cattle which were affected with a communicable disease.

d. That they have demonstrated to the satisfaction of the State agency their inability or unwillingness to carry out the recordkeeping requirements contained in this Part.

e. That they have been operating as a dealer and are not registered (this may be covered under Violations; Remedies 5. below).

2. Records required - Each registered or licensed person, firm, or corporation shall keep a record of all test-eligible beef cattle and *all* dairy cattle (except steers, spayed heifers, and calves under 6 months of age) purchased, sold, or otherwise handled. Slaughter buyers are excluded from the recordkeeping requirement when the identification of each animal is a matter of record as required and all cattle in the shipment are consigned directly to slaughter.

The transaction records required by this Part shall be recorded and kept in an appropriate record book or other system that will, in the opinion of the State agency, accomplish the purpose and objectives of this Part.

**3. Contents of Records** - The records shall include the following information pertaining to all test-eligible beef cattle and all dairy cattle (except steers, spayed heifers, and calves under 6 months of age) which have been purchased, sold, or otherwise handled.

a. Tag numbers or other identifying numbers carried by or assigned to the animal at the time of purchase by, or consignment to, and at the time of sale by a dealer, broker, auctioneer, auction market operator, or other intermediary or agent. Any animal not properly identified (as provided in this Part) at the time of purchase or sale, will be immediately identified with acceptable identification tags, brands, and/or tattoos. Official backtags will be acceptable individual identification for animals of the beef breed purchased in the country for immediate sale at regular scheduled auction sales, stockyards, or slaughtering establishments. Dairy cattle must be identified with an eartag or other acceptable means of identification other than a backtag, except when they are consigned direct to slaughter a backtag is acceptable.

b. The name and address of the person who consigned the animal for sale or from whom the animal was purchased. If such animal was purchased at an auction, the name and address of the auction market and the date of such consignment and purchase.

c. The name and address of the person or firm to whom the animal was sold and the date of such sale or consignment.

d. The breed, sex, approximate age, and weight of each animal.

e. The date and result of any test required for sale or movement of each animal, or a copy of the official test record may be identified to the transaction and filed with the records.

The required information relating to the purchase or sale of livestock shall be recorded immediately upon completion of the transaction involved.

**4. Retention of Records** - The record of any cattle sale, or purchase, or other transaction required by this Part shall be kept and retained in the possession of the dealer, auctioneer, commission company, or auction market for a period of at least 2 years after each purchase or sale of any cattle. All records, together with the entries therein, shall be available for examination by the State agency or any agent of the U.S. Department of Agriculture at all reasonable times.

**5. Violations; Remedies** - Provisions shall exist for State animal health officials to institute such action at law or in equity as may appear necessary to enforce compliance with any provision of this Part. This shall include the authority to subpoena persons and/or records in violation of these minimum standards as well as authority for the appropriate State officials to petition the local court having venue for an order to enforce such subpoenas.

A brand law or regulation which accomplishes the purposes of Section U of this section will be considered an acceptable alternative. Acceptance of this alternative will be based on a review of the provisions and accomplishments (effectiveness of tracing MCI reactors to their herd of origin) of such law or regulation on an individual State basis.

## **Part III — Participation in Herd or Area Certification Plans**

**A. OBTAINING INITIAL CERTIFICATION STATUS** — To obtain initial Certified Brucellosis-Free Herd status or area certification status, the herds or area must use one or more of the accepted methods listed in Parts IV, V, or VI for qualifying the herds or area and must meet all of the qualifying standards given under Parts IV, V, or VI.

**B. MAINTAINING CERTIFICATION STATUS** — State and Federal officials in charge of program activities in each State are responsible for conducting a continuous evaluation of the efficiency of local procedures for locating and eliminating infected cattle. The minimum standards as described for each plan in Parts IV, V, and VI, Brucellosis Eradication Uniform Methods and Rules, must be met or exceeded throughout the certification period to maintain continuous status. A review committee including representatives from States, universities, and industry will evaluate each State's brucellosis program as needed, but at least once each 3 years. An annual report showing the degree of uniformity and adequacy of the surveillance, suspicious and affected herds disclosed, infection rates, and adequacy of program standards within the area, is required to maintain certification. The annual report content and format is available in Veterinary Services Memorandum No. 551.4, which is revised as needed.

**C. TERMINATING CERTIFICATION STATUS** — Herd or area certification status may be terminated at any time during the period with 10 days' notice if the herd or area does not maintain adequate surveillance measures including adjacent and epidemiological tracing measures or fails to comply with quarantine requirements, with testing schedules, with initial testing schedules for suspicious herds detected by the surveillance measures including those herds designated as adjacent herds and epidemiologically traced herds (see Part II, G), has excessive herd infection rates, or improperly disposes of reactors or exposed animals. If legal action against the livestock owner has been initiated by States' attorneys and is in progress, termination of status may not be considered necessary.

**D. REINSTATEMENT OF CERTIFICATION STATUS** — When herds or areas lose certification status because of deficiencies in levels of surveillance or in procedures necessary for locating affected herds, controlling infected and exposed animals, and eliminating infected animals as prescribed under the various plans and procedures, the certification status may be reinstated upon presentation of sufficient evidence showing that the deficiencies have been corrected. Areas in which the deficiencies have not been corrected within 6 months of the termination of the status must qualify as for initial certification.

**E. TERMINATION OF PART V AND PART VI AND INSTITUTING CLASSIFICATION OF STATUS BY STATES** — Area status of Modified Certified Brucellosis Areas and Certified Brucellosis-Free Areas will be terminated as soon as possible but not later than January 1, 1982. Part V will be amended in its entirety to establish standards for entire States to be classified as

Class "C" - Higher Risk of Brucellosis States. Part VI will be amended in its entirety to establish standards for entire States to be classified as Class "B" - Intermediate Risk of Brucellosis States. A new Part VII will be written to amend the Uniform Methods and Rules establishing standards for entire States to be classified as Class "A" - Brucellosis-Free States. (Proposed standards for such classification are set forth in the report of the National Brucellosis Technical Commission.) Option No. 2 of "Alternative Options for Serologic Test Requirements" as set forth in the report of the National Brucellosis Technical Commission will be implemented by or before January 1, 1982.

The USAHA recommended Test Option No. 1 be implemented by December 31, 1982. APHIS considered this recommendation but does not adopt Option No. 1 with an implementation date. The need for Option No. 1 will be evaluated for 2 years. A progress report on the effectiveness of Option No. 2 will be furnished USAHA for determination of the need for Option No. 1 and a later implementation date.

## **Part IV — Certified Brucellosis-Free Herds of Cattle**

### **A. QUALIFYING METHODS — A herd may qualify by one or more of the following methods:**

#### **1. Milk Ring Test (BRT)**

Initial Certification: A minimum of three consecutive negative milk ring tests conducted at not less than 90-day intervals, followed by a negative herd blood test conducted within 90 days after the last negative milk ring test.

Recertification: Milk ring test procedures are not used for herd recertification.

#### **2. Complete Herd Blood Test**

Initial Certification: At least two consecutive negative blood tests of all test-eligible cattle not less than 10 months nor more than 14 months apart. Additional herd blood tests may be conducted if the owner so desires or if the certifying agencies deem it necessary.

Recertification: A negative herd blood test of all test-eligible cattle conducted within 60 days of each anniversary date is required for continuous certification. If the certification test is conducted within 60 days following the anniversary date, the certification period will be 12 months from the anniversary and not 12 months from the date of the recertifying test. If a herd blood test for recertification is not conducted within 60 days following the anniversary date, then certification requirements are the same as for initial certification.

### **B. QUALIFYING STANDARDS**

1. Size of Area - Herd basis including all offspring
2. Length of Status - 12 months
3. Testing Period:

Initial certification: 10 to 14 months (minimum of 6 months if BRT is used).

Recertification: A negative blood test of all test-eligible cattle is to be conducted within 10 to 14 months of the last certification date for continuous status.

4. Herd Infection Rates - The individual herd must disclose no evidence of infection at the time of initial certification or recertification.
5. Animal Infection Rates - The individual animals must disclose no evidence of infection at the time of initial herd certification or recertification.

6. Suspects - When suspects (Part I, B) are disclosed, an individual herd plan shall be developed for the future testing of the suspect(s) and the handling of the herd as described in Part II, T. This plan may range from a quarantine of the entire herd to a single retest of the suspect using the appropriate tests in Part II, I - "Classification of Cattle."

7. Herd Status, if infection occurs - When one or more reactors are disclosed in a certified herd or in a herd under test for initial certification, it shall be considered affected and the quarantine and retest provisions in Part II, D and E shall apply.

Initial Certification: A herd qualifies for initial Certified Brucellosis-Free Herd status when free of infection, all provisions for release of quarantine have been met, and the additional provisions required under Part IV, A-1, and A-2 have been met.

Recertification: If a retest of a Certified Herd or of animals from such a herd reveals only one reactor, the certification status will be suspended until all provisions for release of quarantine have been met. If more than one reactor is disclosed, the herd certification will be terminated until all provisions for release of quarantine have been met and the additional provisions for initial Certified Brucellosis-Free Herd status required under Part IV, A-1 and A-2, have been met.

Herd retests for quarantine release and to fulfill the provisions required under Part IV, A-1 and A-2, may be conducted concurrently.

## 8. Movement of Cattle into a Certified Brucellosis-Free Herd:

a. From Quarantined Feedlots - No animal consigned to a quarantined feedlot may be maintained in association with a Certified Brucellosis-Free Herd.

b. From Other Feedlots - Animals consigned to feedlots other than quarantined feedlots may be held on premises with a Certified Brucellosis-Free Herd, provided these cattle meet the area blood testing requirements prior to entry into the feedlot and there is no contact with the Certified Brucellosis-Free Herd.

c. From Certified Brucellosis-Free Herds or Certified Brucellosis-Free Areas - No test requirements on breeding or dairy cattle originating from Certified Brucellosis-Free Herds or Certified Brucellosis-Free Areas. Animals added to a Certified Brucellosis-Free Herd under this provision shall not receive new herd status for sale purposes until they have passed a 60-120 day postentry retest.

d. From Modified Certified Areas - Test-eligible cattle (Part I, D) from herds not under quarantine must be blood tested negative for brucellosis within 30 days prior to the date of movement and must be retested negative between 60 and 120 days after being moved. Animals added to a Certified Brucellosis-Free Herd under this provision shall not receive new-herd status for sale purposes until they have passed a 60-120 day postentry retest.

e. From Noncertified Areas - Test-eligible cattle from Tested Herds (Part I, T) must have an additional retest within 30 days of the date of movement and must be retested negative between 60 and 120 days after being moved. Animals added to a Certified Brucellosis-Free Herd under this provision shall not receive new-herd status for sale purposes until they have passed the 60-120 day postentry retest.

## **Part V — Modified Certified Brucellosis Areas**

**(This status will terminate no later than January 1, 1982)**

**(See Part III, E)**

### **A. QUALIFYING METHODS — An area may qualify by one or more of the following methods:**

1. Milk Ring Test (BRT) - The milk ring test shall be conducted at least three times per year at approximately equal intervals, and all herds with positive milk ring test results shall have the entire herd blood tested within 30 days from the date of laboratory tests. To qualify individual herds for initial Modified Certified Brucellosis Area status, the four most recent consecutive tests for each herd during the testing period must be negative. In new or recently assembled dairy herds, one or more consecutive negative ring tests will qualify the herd for area certification purposes provided each milk ring test of samples from such herds are negative. The milk ring procedure will be adjusted in accordance with herd size. The quality of the samples used for the milk ring test will be monitored at the time of collection.

### **2. Market Cattle Identification Program (MCI)**

#### **a. Coverage**

Initial Certification: At least 15 percent (10 percent per year during the 18-month testing period) of the breeding cows over 2 years of age from each herd not covered by the milk ring test.

Recertification: At least 30 percent (10 percent per year during the 3-year testing period) of the breeding cows in the area over 2 years of age from herds not covered by the milk ring test.

b. Reactors - At least 80 percent of the reactors must be successfully traced to the herd of origin and a herd blood test conducted. (See Part I, S.) Herd blood tests shall be conducted within 30 days of disclosure of market cattle test reactors or the herds shall be confined to the premises under quarantine. All market cattle test reactor herds shall be blood tested within 6 months of disclosure of the market reactor. If 70 to 80 percent of the reactors can be successfully traced, then the area may be provisionally qualified under this method, but an annual report of the MCI program coverage in that area will be required.

c. Reporting Results - All MCI reactors, including the successful and nonsuccessful tracebacks, and blood tests of herds of origin are to be reported in the data when requesting area certification. The data summarizing the successful and nonsuccessful tracebacks for cattle with backtags and for cattle without backtags should be presented separately.

### **3. Complete Herd Blood Test**

Initial Certification: Complete herd blood test of all test-eligible cattle in each herd which has not qualified for initial certification under Part V, A-1 or A-2.

**Recertification:** Complete herd blood test of at least 20 percent of the representative herds in the area. A different 20 percent will be selected for each recertification. When less than 30 percent of the breeding cows in the area over 2 years of age from herds not covered by a milk ring test are tested under MCI during the 3-year testing period, then a complete herd blood test of at least 20 percent of the representative herds in the area that have not qualified by MCI or BRT coverage is needed.

When an affected herd is found, contact herds shall be handled as described in Part II, F. This provision applies equally for initial certification and recertification of areas.

## **B. QUALIFYING STANDARDS**

1. Size of Area - Usually county; may be other political subdivision. The extent of the area shall be determined by the cooperating State and Federal agencies.
2. Length of Status - 3 years
3. Testing Period - 18 months immediately preceding request for initial certification; 3 years for recertification.
4. Herd Infection Rate - Not more than 5 percent of the herds or one herd, whichever is greater, in the area shall have been found to be affected during the testing period. If the herd infection rate is more than 5 percent, then the results of the last retest of a sufficient number of the affected herds applied not less than 60 days following removal and slaughter of reactors can be used to reduce the herd infection rate to not more than 5 percent.
5. Suspects - When suspects (Part I, B) are disclosed, an individual herd plan shall be developed for the future testing of the suspect(s) and the handling of the herd as described in Part II, T. This plan may range from a quarantine of the entire herd to a single retest of the suspect using the appropriate tests in Part II, I - "Classification of Cattle."
6. Area Status, if Excessive Infection Rates Occur - If an area does not qualify for recertification because of excessive herd infection rates, even after herd retest results are used, it shall become necessary to make a complete area retest. If the area completes the necessary testing to qualify for recertification within 6 months after the due date, consideration will be made for reinstating such an area.
7. Other Considerations - A concerted effort through effective surveillance programs and extensive epidemiologic investigations to locate infection and to eradicate the disease is required. (See Part II, G.)

MCI samples showing a standard agglutination titer at 1:25 or above, or that are positive to the card test (see Part II, I), shall be tested further by use of other official and supplemental tests. All of the results are to be furnished to the State of origin. The test results and the herd investigation will be reviewed by a brucellosis epidemiologist in arriving at a diagnosis. Those animals requiring a followup herd blood test must be successfully traced to the herd of origin as indicated in A-2, b, above.

**8. Movement of Cattle Into or Within Modified Certified Areas** - All untested test-eligible cattle originating in Modified Certified Brucellosis Areas or noncertified areas moving from a farm or livestock market to a quarantined feedlot or to immediate slaughter shall be identified by branding with a hot iron the letter "S" (at least 2x2 inches) on the left jaw, or high on the tailhead (over the fourth to the seventh coccygeal vertebrae) prior to movement. (See Part II, M, Movement, etc.) Movements without change of ownership, directly from a farm of origin to a slaughtering plant, are exempt from the "S" branding requirements.

The intent is to encourage testing at farms or markets of all test-eligible cattle to detect infected cattle before they move into distribution channels. Detecting reactors at time of movement or sale aids surveillance systems to identify the brucellosis-infected herd which was the source. A test at this time does not detect cattle which have been exposed, since all cattle in the incubation stage of brucellosis may not be reactors. Thus, to reduce the risk of spreading infection from exposed cattle, all purchases should be tested again in 45-120 days following purchase.

Movement for the following purposes:

a. Feeding:

(1) **Movement Into Quarantined Feedlots** - Cattle originating from any herd, except from quarantined feedlots, in any area may be moved without test directly into a quarantined feedlot or to a public stockyard or specifically approved stockyard for sale and shipment to such a quarantined feedlot. (See Part II, M, Movement, etc.) However, testing of test-eligible cattle is recommended to assist in locating affected herds.

(2) **Movement Into Other Feedlots** - Cattle moved to feedlots other than quarantined feedlots must originate from nonquarantined herds in Brucellosis-Free Areas, or be tested and negative from nonquarantined herds in Modified Certified Brucellosis Areas, or originate from Tested Herds in noncertified areas. If infection is traced to this feedlot, it shall be quarantined until released by the slaughter of all quarantined animals in the feedlot, or alternatively by testing procedures. (See Part II, T, Individual Herd Plan for Affected Herds and Suspects.)

b. **Immediate Slaughter** - Cattle originating in any herd in any area may be consigned without test for immediate slaughter directly to a slaughtering establishment or specifically approved stockyard for sale and shipment to such slaughtering establishment. (See Part II, M, Movement, etc.)

c. Breeding, or Purposes other than in 8a or 8b

(1) **Movement of Cattle From Certified Brucellosis-Free Herds or Certified Brucellosis-Free Areas** - There are no test requirements.

(2) **Movement of Cattle From and Within Modified Certified Brucellosis Areas** - Test-eligible cattle, except from Certified Brucellosis-Free Herds, must be blood tested for brucellosis within 30 days prior to movement or at the first concentration or assembly point upon arrival. "Upon arrival" means either testing before the sale or after the sale, provided all cattle consigned are in-

dividually identified and traceable to the consignor and/or the herd of origin. (See Part I, "D - Test-Eligible Animals.")

(3) Movement of Cattle From and Within Noncertified Areas - Test-eligible cattle, except from Certified Brucellosis-Free Herds, must originate in Tested Herds and pass a negative blood test for brucellosis not less than 30 days from the date of the herd test and within 30 days of the date of movement. (See Part I, D and T.)

(4) Movement of Cattle From Modified Certified Brucellosis Area States and Noncertified States - All test-eligible cattle moving interstate from any State having a modified certified area or noncertified area, in addition to the requirements of (2) and (3), must have a permit for entry from the State of destination, be quarantined upon arrival, and be retested in not less than 45 days nor more than 120 days.

d. All animals in herds or lots blood tested for brucellosis in which reactors are disclosed must be handled in accordance with the provisions in Part II, M (Movement of Reactors, Exposed Cattle, Suspects, and Untested Test-Eligible "S" Branded Cattle).

## **Part VI — Certified Brucellosis-Free Areas**

**(This status will terminate no later than January 1, 1982)**

**(See Part III, E)**

**A. QUALIFYING METHODS —** Any area may qualify by one or more of the following methods:

1. Milk Ring Test - The milk ring test shall be conducted at least three times per year at approximately equal intervals, and all herds with suspicious milk ring test results shall have the entire herd blood tested within 30 days, based on date of laboratory test. In new or recently assembled dairy herds, one or more consecutive negative ring tests will qualify the herd for area certification purposes provided each milk ring test of samples from such herds are negative. The milk ring test procedure will be adjusted in accordance with herd size. The quality of the samples used for the milk ring test will be monitored at the time of collection.

2. Market Cattle Identification Program (MCI)

a. Coverage

Plan 1 Herd Basis - At least 5 percent per year during the testing period of the breeding cows over 2 years of age from each herd not covered by the milk ring test; or

Plan 2 Area Basis - At least 10 percent per year during the testing period of the breeding cows in the area over 2 years of age from herds not covered by the milk ring test.

b. Reactors - Minimum of 90 percent of the reactors must be successfully traced to the herd of origin. (See Part I, S.) Herd blood tests should be conducted within 30 days of disclosure of market cattle test reactors or the herds should be confined to the premises under quarantine. All market cattle test reactor herds shall be blood tested within 6 months of disclosure of the market reactor.

c. Reporting Results - All MCI reactors, including the successful and nonsuccessful tracebacks, and test of herds of origin are to be reported in the data when requesting area certification. The data summarizing the successful and nonsuccessful tracebacks for cattle with backtags and for cattle without backtags should be presented separately.

3. Complete Herd Blood Test

Initial Certification: Complete herd blood test of all test-eligible cattle in each herd which has not qualified for initial certification under Part VI, A-1 or A-2.

Recertification: Complete herd blood test of all test-eligible cattle in each herd qualifying under this method. It is strongly recommended that all herds known to have been infected during the cur-

rent certification period should qualify by a complete herd retest at least 90 days following the blood test for quarantine release.

When an affected herd is found, contact herds shall be handled as described in Part II, G. This provision applies equally for initial certification and recertification.

## B. QUALIFYING STANDARDS

1. Size of Area - Usually county; may be other political subdivision provided it is located in a State in which all other areas have achieved initial Modified Certified Brucellosis Area or Certified Brucellosis-Free Area status. The extent of the area shall be determined by cooperating State and Federal agencies.

2. Length of Status - 6 years or until a State has 50 percent or more of its counties approved as Certified Brucellosis-Free Areas; then an annual report is required to maintain and advance Certified Brucellosis-Free Area status.

### 3. Testing Period

Initial Certification: 18 months immediately preceding request for certification. A 6-month extension, providing a 24-month period for accumulation of data for certification, is permissible if the 18-month period is insufficient to complete testing requirements.

Recertification: 18 months immediately preceding request for recertification. A 6-month extension, providing a 24-month period for accumulation of data for recertification, is permissible if the 18-month period is insufficient to verify the status of the area. For those States with 50 percent or more of their counties as Certified Brucellosis-Free Areas, recertification is maintained and advanced by an annual report.

4. Herd Infection Rate - Not more than 1 percent of the herds or one herd, whichever is greater, shall have been found to be affected during the testing period. There must be no known foci of cattle brucellosis in the area at the time of certification. This includes MCI reactor herds pending test, BRT suspicious herds pending test, and suspects still being tested to determine their status.

5. Suspects - When suspect(s) (Part I, B) are disclosed, an individual herd plan shall be developed for the future testing of the suspect(s) and the handling of the herd as described in Part II, T. This plan may range from a quarantine of the entire herd to a single retest of the suspect using the appropriate tests in Part II, I - "Classification of Cattle."

6. Area Status, if Excessive Infection Rates Occur - If an area does not qualify for initial certification because of excessive herd infection rates, than a new testing period must be established. Areas failing to qualify for recertification because of excessive herd infection rates will revert to modified certified status. If the necessary testing can be accomplished to qualify the area for recertification within 6 months after the due date, consideration will be made for reinstating such an area. For both initial and recertification, all cattle herds in which brucellosis has been known to exist must be legally released from quarantine prior to certification. In addition, all herds of other species of domestic

livestock in which brucellosis has been found or suspected must be tested negative, slaughtered, or quarantined, leaving no known foci of infection in any species uncontrolled at the time of certification. If the annual review required to maintain Statewide Certified Brucellosis-Free Area status indicates excessive herd infection rates within individual counties, the Certified Brucellosis-Free Area status of those counties will be removed with 10 days' notice.

**7. Other Considerations** - A concerted effort through effective surveillance programs and extensive epidemiologic investigations to locate infection and to eradicate the disease is required. (See Part II, G.) All suspicious BRT and MCI reactor herds must be tested, and all herds affected with brucellosis shall have been legally released from quarantine. All test results on animals of out-of-State origin are to be furnished to the State of origin. Those animals requiring a followup herd blood test must be successfully traced to the herd of origin as indicated in A-2, b, above.

**8. Movement of Cattle Into or Within Certified Brucellosis-Free Areas** - Movement for the following purposes:

a. Feeding:

(1) **Movement into Quarantined Feedlots** - Cattle originating from any herd, except from quarantined feedlots, in any area may be moved without test directly into a quarantined feedlot or to a public stockyard or specifically approved stockyard for sale and shipment to such a quarantined feedlot. (See Part II, M - Movement, etc.) However, testing of test eligible cattle is recommended to assist in locating affected herds.

(2) **Movement Into Other Feedlots** - Cattle moved to feedlots other than quarantined feedlots must originate from nonquarantined herds in Certified Brucellosis-Free Areas, or be tested and negative from nonquarantined herds in Modified Certified Brucellosis Areas, or originate from Tested Herds in noncertified areas. If infection is traced to this feedlot, it shall be quarantined until released by the slaughter of all quarantined animals in the feedlot, or alternatively by testing procedures. (See Part II, T - Individual Herd Plan for Affected Herds and Suspects.)

b. **Immediate Slaughter** - Cattle originating in any herd in any area may be consigned without test for immediate slaughter directly to a slaughtering establishment or specifically approved stockyard for sale and shipment to such slaughtering establishment. (See Part II, M - Movement, etc.)

c. Breeding, or Purposes other than in 8a and 8b:

(1) **Movement of Cattle From Certified Brucellosis-Free Herds or Certified Brucellosis-Free Areas** - There are no test requirements.

(2) **Movement of Cattle From Modified Certified Brucellosis Areas** - Test-eligible cattle, except from Certified Brucellosis-Free Herds, must be blood tested for brucellosis within 30 days prior to movement or at the first concentration or assembly point upon arrival. "Upon arrival" means either testing before the sale or after the sale, provided all cattle consigned are individually identified and traceable to the consignor and/or the herd of origin. (See Part I, D - "Test-Eligible Animals.")

(3) Movement of Cattle From Noncertified Areas - Test-eligible cattle, except from Certified Brucellosis-Free Herds, must originate in Tested Herds and pass a negative blood test for brucellosis not less than 30 days from the date of herd blood test and within 30 days of the date of movement. (See Part I, D and T.)

(4) Movement of Cattle From Modified Certified Brucellosis Area States and Noncertified States - All test-eligible cattle moving interstate from any State having a Modified Certified Brucellosis Area or a noncertified area, in addition to the requirements of (2) and (3), must have a permit for entry from the State of destination, be quarantined upon arrival, and be retested in not less than 45 days nor more than 120 days.

d. All animals in herds or lots blood tested for brucellosis in which reactors are disclosed must be handled in accordance with the provisions of the Uniform Methods and Rules, Part II, M-Movement, etc.

# **Chapter II — Swine Brucellosis**

## **Part I — Definitions**

**A. REACTOR** — Any swine that disclose complete STT agglutination reactions to the blood titer dilution of 1:100 or higher. Any swine in an infected herd or on an incomplete test of a herd of unknown status having a complete reaction in the 1:25 dilution or higher. Any swine disclosing a positive card test reaction or are found infected by other diagnostic procedures.

**B. SUSPECT** — Card-test-positive swine disclosed in a herd which is otherwise serologically, bacteriologically, and epidemiologically negative may be held under herd quarantine until subjected to subsequent tests to determine the status of the animals.

**C. NEGATIVE** — Any swine from an infected herd or herd of unknown status that disclose a STT agglutination reaction of less than complete agglutination in the blood titer dilution of 1:25 or that have no reaction to the card test.

Any swine from a validated herd not known to be infected in a validated area, or on a complete herd test that disclose a STT agglutination reaction of less than complete agglutination in the blood titer dilution of 1:100 or that have no reaction to the card test.

**D. HERD TEST** — The herd test shall include all breeding swine 6 months of age and older. All swine being held for feeding purposes, separate and apart from breeding swine, are exempted from herd test requirements. All swine tested shall be identified with an eartag, tattoo, or other permanent identification.

**E. FEEDLOT** — A confined drylot area for finish feeding swine on concentrated feed with no facilities for pasturing or grazing. All swine in feedlots shall be held separate and apart from all breeding swine.

**F. MARKET TEST SWINE** — Sows, boars, and stags moving in trade through auction markets, stockyards, buying stations, or to slaughter establishments; also those sows, boars, and stags assembled at farms or ranches that are being readied for immediate movement to markets, stockyards, or slaughtering establishments or other sales.

**G. SUCCESSFUL TRACEBACK OF REACTORS** — A successful traceback occurs when the premises or herd of origin of a market test reactor is located and the herd is tested. If the herd has been dispersed or a significant proportion of the herd has been dispersed, the herds of destination of these dispersed animals must be located and the brucellosis status of these dispersed animals established by blood test to claim a successful traceback. Further testing in the herd of destination should be conducted as is deemed necessary. If all animals at the premises of origin were sold for slaughter, a successful traceback can also be claimed. However, if some animals were not sold for slaughter, then the animals sold for return to farms must be traced and tested at destination to claim successful traceback. Tracing to dealers, feedlots, commission firms, and such are not considered successful tracebacks of reactors.

**H. EXPOSED SWINE** — Swine that are part of a known infected herd or have been in contact with brucellosis reactors in marketing channels for periods of 24 hours or periods of less than 24 hours if the reactor has recently aborted, farrowed, or has a vaginal or uterine discharge are considered exposed regardless of the blood test results and must be placed under quarantine and restricted pending slaughter or testing after return to herd of origin.

## **Part II — Recommended Procedures**

**A. LABORATORIES** — Blood samples are to be tested only by cooperating State-Federal laboratories or such persons as may be authorized to conduct the card test. All card positive samples tested at other than cooperating State-Federal laboratories shall be promptly submitted and confirmed at the cooperating State-Federal laboratory.

**B. REPORTING** — Activities conducted privately or as part of the official Brucellosis Eradication Program, must be reported immediately to State-Federal cooperating agencies.

**C. SUPERVISION** — The official Brucellosis Eradication Program shall be supervised by full-time State or Federal veterinarians.

**D. QUARANTINE** — All swine in infected herds must be confined to the premises until freed of brucellosis or sold for slaughter under permit. Two consecutive negative herd tests are required for release of quarantine with the first test occurring not less than 30 days after the removal and slaughter of all reactors and the second test to occur not less than 90 days following the first negative test. Herds of origin of MST reactors which fail to reveal additional reactors on a test of the entire herd would not be required to be held under quarantine for additional testing unless evidence suggestive of brucellosis infection or exposure thereto is present.

**E. RETEST OF INFECTED HERDS** — Variable according to herd plan selected (See Part VI).

**F. CLEANING AND DISINFECTION** — Premises shall be cleaned and disinfected under regulatory supervision within 15 days following the removal of reactors or the entire herd for slaughter. An extension of time may be considered under extenuating circumstances. Exemptions from cleaning and disinfection requirements, when indicated, can be authorized by the cooperating State-Federal officials directing the brucellosis program activities within the State.

### **G. CLASSIFICATION OF SWINE**

1. Card Test - Card test results are classified as either negative or positive.
2. Standard Tube Test - The blood titers of swine tested by the STT method are classified by use of the following:

If all of the following apply:

If one or more of the following apply:

- a. No animals on test with titers greater than I1:100,
- a. One or more animals on test with titer greater than I1:100,
- b. Not a retest of an infected herd, and
- b. Retest of an infected herd, or
- c. Complete herd test or incomplete test of a validated herd.
- c. Incomplete test of a herd of unknown status.

Then use the following:

1:25	1:50	1:100	
I	-	-	NEGATIVE
+	-	-	NEGATIVE
+	I	-	NEGATIVE
+	+	-	NEGATIVE
+	+	I	NEGATIVE

Then use the following:

1:25	1:50	1:100	
I	-	-	NEGATIVE
+	-	-	REACTOR
+	I	-	REACTOR
+	+	-	REACTOR
+	+	I	REACTOR
+	+	+	REACTOR

3. Semen Plasma Test - The semen plasma test is approved as an official test in boars used for artificial insemination when used in conjunction with the card test and/or the standard tube test. The classification of such animals shall be based on the maximum agglutination titer of either test.

#### **H. IDENTIFICATION OF REACTOR SWINE** — Reactor swine are to be permanently identified by placing an approved reactor eartag in the left ear.

**I. IMMEDIATE SLAUGHTER OF REACTORS** — Reactor swine must be sold for slaughter and removed from the premises under State or Federal permit within 15 days of the date of identification (reactor herds under Plan 2, Part VI, may handle reactors according to recommended procedures of the plan). Reactors shall remain on the premises where discovered until a State or Federal permit for movement to slaughter has been obtained. Movement for immediate slaughter must be to a slaughtering establishment where Federal or State inspection is maintained or to a State or Federal approved market for sale to such slaughtering establishment. Reactor swine upon delivery to the slaughtering establishment shall be slaughtered as soon as practical. The time may be extended for reasons mutually acceptable to the cooperating State and Federal officials in charge.

**J. MOVEMENT OF QUARANTINED AND EXPOSED SWINE** — Quarantined and exposed swine must be moved under permit and can be moved for immediate slaughter or returned to the herd of origin. When moved, the swine must be maintained separate and apart from all other classes of livestock. When moved to other than the herd of origin, exposed animals will be individually identified by eartag and the number recorded on the permit.

**K. ENTERING PREMISES** — Persons engaged in the Brucellosis Eradication Program shall be authorized to enter premises to carry out eradication procedures.

**L. SERVICES TO OWNER** — Services should be rendered without expense to livestock owners as long as funds for such purposes are available and such services are not required to be performed at owner's expense by State regulations.

Contracts with accredited veterinarians, nonprofessionals, other State and Federal agencies, or with management of privately owned firms are to be used as needed to assist State and Federal animal health personnel accomplish necessary sample collections, animal identification, and other activities.

## **Part III — Participation in Herd or Area Validation Plans**

- A. OBTAINING INITIAL VALIDATION STATUS** — To obtain initial validation status, the herds or area must use one or more of the accepted methods listed in Part IV or V, for qualifying the herds or area and must meet all of the qualifying standards given under Part IV or V.
- B. MAINTAINING VALIDATION STATUS** — State and Federal officials in charge of the program activities in each State are responsible for a continuous evaluation on the efficiency of local procedures for locating and eliminating infected swine. The minimum standards as described for each plan in Parts IV and V, Brucellosis Eradication Uniform Methods and Rules, must be met or exceeded throughout the validation period to maintain continuous status.
- C. TERMINATING VALIDATION STATUS** — Herd or area validation status may be terminated at any time during the period if a herd or area does not maintain adequate surveillance measures or fails to comply with quarantine, testing schedules, initial testing schedules for suspicious herds detected by the surveillance measures, or proper disposal of reactors unless legal action against the livestock owner has been initiated by State's attorneys and is in progress.
- D. REINSTATEMENT OF VALIDATION STATUS** — When herds or areas lose validation status because of deficiencies in levels of surveillance or in procedures necessary for locating infected herds, controlling infected and exposed swine, and eliminating infected swine as prescribed under the various plans and procedures, the validation status may be reinstated upon presentation of sufficient evidence showing that the deficiencies have been corrected. Areas in which the deficiencies have not been corrected within 6 months of the termination of the status must qualify for initial validation.

## **Part IV — Validated Brucellosis-Free Herds of Swine**

### **A. QUALIFYING METHODS —** A herd may qualify by one or more of the following methods:

1. Complete Herd Test - Swine herds may be initially validated or revalidated on a negative herd test of all breeding swine 6 months of age and over in the herd.
2. Market Swine Testing Program (MST) — Initial Validation: MST not used.

Revalidation: A minimum of 20 percent of the adult breeding swine (6 months of age and over) in the herd must be tested during the validation period with at least one-half of the MST coverage obtained during the last 6 months of the period. This requires credit back to farm of origin to maintain individual validated herd status. The herd of origin of market swine reactors will be quarantined and the validated herd status suspended until a herd test is conducted. The herd test should be conducted within 30 days of disclosure of the market reactor. Individual herd records for the market swine test results to support this method of validation must be maintained by the State cooperator.

3. Quarterly Tests—Initial validation: Quarterly tests not used.

Revalidation: Twenty-five percent of the adult breeding swine (6 months of age and over) in the herd must be tested every 3 months (80-100 days) with each breeding animal tested at least once during the year.

### **B. QUALIFYING STANDARDS**

1. Size of Unit - Herd basis - applies to all offspring including specific pathogen-free pigs from such herds.
2. Length of Status - 12 months.
3. Testing Period

Initial Validation: A herd can be validated on the results of the one negative herd test.

Revalidation: All eligible swine shall be negative to a test conducted within 10 to 14 months of the last validation date or establish that at least 20 percent of the adult breeding swine were tested under a market swine testing program during the year and that at least one-half of sampling occurred during the last 6 months of the validation period, or that 25 percent of the adult breeding swine (6 months of age and over) in the herd were tested every 3 months (80-100 days) with each breeding animal tested at least once during the year.

4. Herd Infection Rate — The individual herd must disclose no evidence of infection at time of validation or revalidation.

5. Animal Infection Rate - The individual animals must disclose no evidence of infection at the time of herd validation or revalidation.

6. Suspects - Card-test-positive swine disclosed in a herd which is otherwise serologically, bacteriologically, and epidemiologically negative may be held under herd quarantine until subjected to subsequent tests to determine the status of the animals.

7. Herd Status, if Infection Occurs - When one or more reactors are disclosed in a validated herd or in a herd under test for initial validation, it shall be considered infected and the quarantine and retest provisions in Part II, D and E, shall apply.

Initial Validation - A herd qualifies for initial Validated Brucellosis-Free status when free of infection, all provisions for release of quarantine have been met, and when the additional provisions required under Part IV, A-1, have been met.

Revalidation: If on a complete or partial test of a validated herd, reactors are disclosed, then herd validation status is terminated until all provisions for release of quarantine have been met, and until the additional provisions for initial Validated Brucellosis-Free herd status required under Part IV, A-1, have been met.

Herd retests for quarantine release and to fulfill the provisions required under Part IV, A-1, may be conducted concurrently.

8. Movement of Swine into Validated Herds from:

a. Validated Brucellosis-Free Herds - No test requirement.

b. Nonvalidated herds in any area and not under quarantine and added for breeding purposes. Individual animals must have two consecutive tests at least 60 days apart with the second test within 30 days of movement. With bred sows and gilts the second test should be at least 30 days after farrowing.

c. Feedlots - Swine from feedlots may not be added to Validated Brucellosis-Free Herds. However, swine may be consigned to feedlots on validated herd premises without test provided such swine are held in isolation separate and apart from all breeding stock.

d. Slaughter Channels - Slaughter swine may not be added to Validated Brucellosis-Free Herds.

9. Movement of Swine Semen for Artificial Insemination into Validated Herds from:

a. Purebred Herds - Purebred herds from which semen is collected must be validated on the basis of herd blood tests.

b. Commercial Boar Studs - Commercial boar studs from which semen is collected must be validated on the basis of herd blood tests and herd semen agglutination tests.

## **Part V — Validated Brucellosis-Free Areas**

**A. QUALIFYING METHODS** — An area may qualify by one or more of the following methods:

**1. Market Swine Testing Program**

**a. Coverage**

**Initial Validation:** At least 15 percent (10 percent per year) of the breeding swine 6 months of age or over from each herd, during the 18-month testing period.

**Revalidation:** At least 30 percent (10 percent per year) of the breeding swine 6 months of age or over from each herd during the 3-year revalidation period.

**b. Reactors - Minimum of 90 percent of the reactors must be successfully traced to the herd of origin and a herd test conducted.**

**c. Reporting Results** - All MST reactors including the successful and nonsuccessful tracebacks, and tests of herds of origin of reactors must be reported in the area validation request.

**2. Complete Herd Test** - Negative herd test of all breeding swine 6 months of age or older in each herd which has not qualified for area validation under Part V, A-1. The complete herd test must be conducted within the 18-month period prior to the date (re)validation is requested for the area.

**3. Alternate Method for Statewide Validation**

**Initial Validation:** The entire State may be validated if these alternative provisions are followed for a 1-year period.

**a. All herds selling breeding stock are tested and declared validated.**

**b. Ninety percent of all sows, boars, and stags are tested at slaughter; a minimum of 90 percent of the reactors must be successfully traced to the herd of origin and a herd test conducted; all MST reactors including successful and nonsuccessful tracebacks, and tests of herds of origin of reactors must be reported in the area validation request.**

**c. When reactors are found, the herd of origin is tested under one of the plans listed in Part VI or sent to slaughter within 30 days.**

**Revalidation:** The entire State may be revalidated if the following procedures are carried out:

**a. Ninety percent of all sows, boars, and stags are tested at slaughter during each year of the 3-year testing period; a minimum of 90 percent of the reactors must be successfully traced to the herd**

of origin and a herd test conducted; all MST reactors, including the successful and nonsuccessful tracebacks, and tests of herds of origin of reactors must be reported in the area revalidation request.

b. When reactors are found, the herd of origin is tested under one of the plans listed in Part VI or sent to slaughter within 30 days.

## **B. QUALIFYING STANDARDS**

1 Size of Area - Usually county; may be other political subdivision. The extent of the area shall be determined by the cooperating State and Federal agencies.

2. Length of Status - 3 years.

3. Testing Period

Initial Validation: 18 months immediately preceding request for validation when qualifying by the market testing program or complete herd test method. Twelve months immediately preceding request for validation when alternate method is used.

Revalidation: 18 months to 3 years depending upon method of qualifying herds.

4. Herd Infection Rates

Initial Validation: Not more than 3 percent of the herds or one herd, whichever is greater, shall have been found to be infected during the qualification period. There must be no known foci of swine brucellosis in the area at the time of validation.

Revalidation: The accumulated number of infected herds in a Validated Brucellosis-Free Area may not exceed 5 percent of the herds in the area or one herd, whichever is greater, over the 3-year validation period. There must be no known foci of swine brucellosis in the area at the time of revalidation.

5. Animal Infection Rates - Animal infection rates not considered.

6. Suspects - Card test positive swine disclosed in a herd which is otherwise serologically, bacteriologically, and epidemiologically negative may be held under herd quarantine until subjected to subsequent tests to determine the status of the animals.

7. Area Status, if Excessive Infection Rates Occur - If an area does not qualify because of excessive herd infection rates, a new testing period must be established. All herds in which brucellosis has been known to exist must be legally released from quarantine prior to area validation.

8. Movement of swine into or within Validated Brucellosis-Free Areas for the following purposes:

a. Feeding swine consigned to feedlots may move into or within validated areas without test provided such swine are maintained in isolation separate and apart from all breeding stock.

b. Slaughter - Swine consigned to slaughter may move into or within validated areas without test. Such swine may not be diverted en route for any other purpose.

c. Breeding or purposes other than 8a and 8b.

(1) Swine from Validated Brucellosis-Free Herds or herds in Validated Brucellosis-Free Areas - No test requirements. Swine must be moved directly and must not have been in contact with swine of lesser status.

(2) Individual swine from nonvalidated herds in nonvalidated areas must have a negative test within 30 days prior to the date of entry into a Validated Brucellosis-Free Area. These swine must be held in isolation and pass an additional test conducted between 60 and 90 days from the date of the test for entry before being added to the herd.

9. Movement of Swine Semen for Artificial Insemination into Validated Areas from:

a. Purebred herds from which semen is collected must be validated on the basis of herd blood tests.

b. Commercial boar studs from which semen is collected must be validated on the basis of herd blood tests and herd semen agglutination tests.

## **Part VI — Plans for Eradicating Brucellosis From Infected Swine Herds**

If infection is disclosed in swine herds, one of the following plans should be selected for eradicating the disease. Infected herds under test for area validation status should also choose one of these plans to eradicate brucellosis from the herd.

**A. PLAN 1** — This plan is recommended for commercial herds found infected. The following procedures should be carried out:

- a. Market the entire herd for slaughter as soon as practicable.
- b. Clean and disinfect houses and equipment.
- c. Restock premises with animals from Validated Brucellosis-Free Herds, placing them on ground that has been free of swine for at least 60 days.

**B. PLAN 2** — This plan is recommended for use in infected purebred herds only where it is desired to retain valuable blood lines. The following procedures should be carried out:

- a. Separate pigs from sows at 42 days of age or younger and isolate.
- b. Market infected herd for slaughter as soon as practicable. Infected sows should not be rebred and should be slaughtered as soon as possible. Complete isolation of infected animals is essential. The separated weanling pigs form the nucleus for establishment of the infection-free herd.
- c. Test the gilts to be used for the following season about 30 days before breeding. Save only the gilts that are negative. Breed only to negative boars.
- d. Retest the gilts after farrowing and before removing them from individual farrowing pens. Should reactors be found, they should be segregated from the remainder of the herd and slaughtered as soon as possible. Select only pigs from negative sows for breeding gilts.
- e. If reactors are found in step (d), the process is repeated.
- f. Following two consecutive negative tests not less than 90 days apart, the herd is eligible for quarantine release.

**C. PLAN 3** — This plan is not recommended in general, but it has been found useful in herds where only a few reactors are found and where no clinical symptoms of brucellosis have been noted. Carry out the following procedures:

- a. Market reactors for slaughter.
- b. Retest herd at 30-day intervals, removing reactors for slaughter, until the entire herd is negative.
- c. If the herd is not readily freed of infection, abandon this plan in favor of Plan 1 or Plan 2.
- d. Following two consecutive negative tests not less than 90 days apart, the herd is eligible for quarantine release.







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